

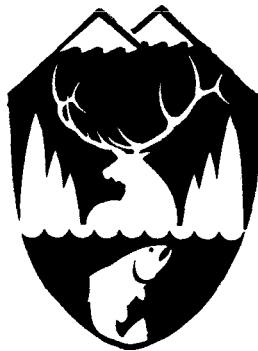
IDAHO

DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

McCALL FISH HATCHERY

Annual Report



1 October 1982 - 30 September 1983

by
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McCALL FISH HATCHERY

ABSTRACT

McCall Hatchery produced 285,382 cutthroat trout fry (2,126.5 pounds) during 1983. We fed 643 pounds of fish feed and attained a feed conversion of 1.29 pounds of feed per pound of fish gain.

We stocked 92 mountain lakes with 29,213 trout fry, and redistributed 126,050 (33,682 pounds) catchable-size rainbow trout in 27 rivers and streams and 15 lakes and reservoirs. We also transferred 237,953 trout fry to three state hatcheries.

Only one major disease occurred in our trout fry this year. Nutrition Gill Disease appeared in our cutthroat and was successfully treated by using desiccated liver.

Spawntaking operations at Fish Lake resulted in the trapping of 677 westslope cutthroat trout, yielding 274,490 eggs from 389 females (706 eggs per female).

Special studies conducted this year included the use of vexar netting during incubation and the use of clinoptilolite in polyethylene bags used for stocking mountain lakes.

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OBJECTIVES

The objectives of McCall Hatchery are:

1. Redistribute approximately 25,000 pounds of catchable-size rainbow trout reared at other state hatcheries into 27 streams and 15 lakes and reservoirs in Regions 2 and 3.
2. Hatch and rear approximately 300,000 trout fry for stocking in mountain lakes and for redistribution to other hatcheries.
3. Stock approximately 600 high mountain lakes in Regions 2 and 3 on a three year rotation basis.
4. Operate and maintain a fish trap at Fish Lake for the purpose of obtaining westslope cutthroat eggs.

INTRODUCTION

McCall Hatchery was constructed in 1979-1980 as part of the Lower Snake River Compensation Plan (LSRCP). Congress authorized the LSRCP to compensate Idaho, Oregon and Washington for losses of fish and wildlife caused by the Lower Snake River Projects (Ice Harbor, Lower Monumental, Little Goose and Lower Granite Dams). Designed primarily for the production of summer chinook salmon, the McCall Hatchery is also used to redistribute catchable-size rainbow trout and to hatch and rear various trout species for stocking in area waters. Funding for trout programs is provided by Idaho Department of Fish and Game for the period 1 April - 30 September. This report covers all programs funded by Idaho Department of Fish and Game.

McCall Hatchery is located within the city limits of McCall, Idaho, along the North Fork Payette River approximately 1/4 mile downstream from the Payette Lake regulating dam. Hatchery water is obtained from Payette Lake via a 36-inch-diameter underground pipeline. Two inlets, one at the surface, the other at a depth of 50 feet, provide the capability of obtaining the best water temperature available (Figure 1). The hatchery requires 20 CFS of water for normal operation.

Fish rearing facilities include: 26 eight-tray stacks of Heath incubators, 14 indoor concrete vats (4' x 40'), two outdoor concrete rearing ponds (42' x 200'), two fiberglass Heath troughs (1.75' x 15.5') and one outdoor collection basin (15' x 101'). Trout eggs are hatched in the incubators, and the fry are moved to the vats for rearing. Catchables are held in the collection basin prior to redistribution. No trout are reared in the outside rearing ponds, as these are used exclusively for salmon.

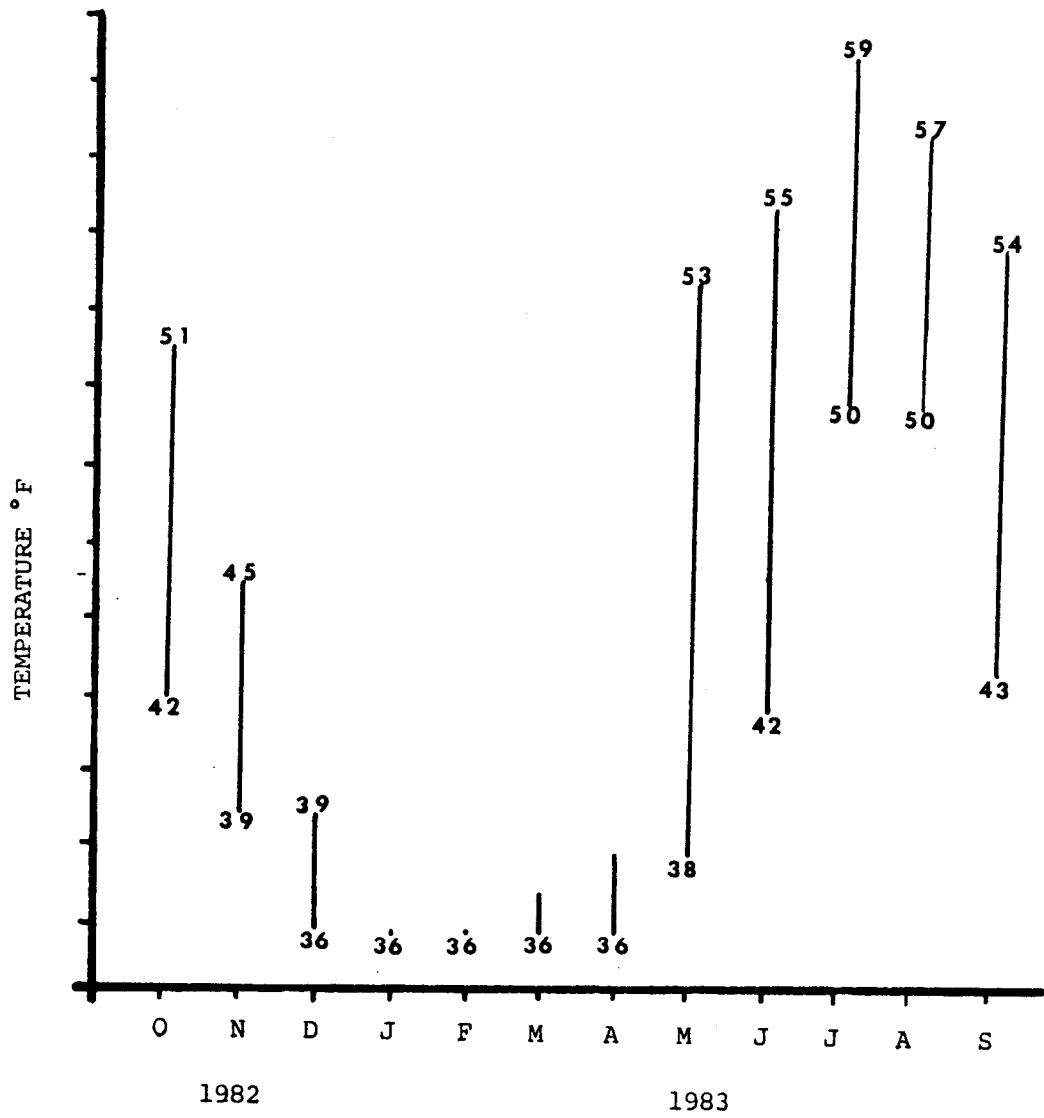


Figure 1. Monthly temperature ranges of McCall Hatchery water.

FISH PRODUCTION

Two species of trout were hatched and reared at McCall this year, with survival ranging from 57.7% to 77.2% (Table 1). We produced 156,163 (189.6 pounds) Henry's Lake cutthroat and 158,275 (229.5 pounds) westslope cutthroat fry this year.

Due to statewide shortage of rainbow trout eggs, no eggs were received. However, we did receive 29,592 (54 pounds) rainbow fry from Mackay Hatchery. These fish were used in stocking mountain lakes. The Henry's Lake cutthroat eggs were received from the Henry's Lake Hatchery and the westslope cutthroat eggs were obtained from spawntaking operations at the Fish Lake facility (Table 2).

FISH HEALTH

Only one major disease problem occurred in our trout fry this year. Mortality in both strains of cutthroat began to rise and no parasites or bacteria could be found to account for such an increase. Samples of moribund fish were sent to Charlie Smith (U.S. Fish and Wildlife Service, Bozeman, Montana) for histological examination. Results indicated the fish were suffering from Nutritional Gill Disease. Apparently, other hatcheries were experiencing the same problems, and all were using the same brand of fish feed. After receiving the diagnosis, the affected fish were fed desiccated liver and after two weeks mortality was reduced to near normal levels.

FISH TRANSFERS AND STOCKING

Transfers

We transferred trout fry to three different hatcheries this year (Table 3). Nearly 150,000 westslope cutthroat fry were transferred to the Clark Fork Hatchery and approximately 80,000 Henry's Lake cutthroat fry were transferred to the Sandpoint Hatchery. These fish were to be used for north Idaho programs. In addition, 10,000 rainbow fry were transferred to Hagerman Hatchery

Catchables

McCall Hatchery is a redistribution station and stocks catchable rainbow trout in Regions 2 and 3, involving Adams, Idaho, Valley and Washington counties (Figure 2). We received catchables from Hagerman and Nampa hatcheries this year and stocked fish from mid-May through the end of August.

Table 1. Trout production at McCall Hatchery.

Species	Fry received	Eggs	Percent eyed	Fish produced	Percent survival	Pounds produced
Cutthroat 1/	-	274,490	77.3	158,275	57.7	229.5
Cutthroat 2/	-	202,176	-	156,163	77.2	189.6
Rainbow	29,592	-	-	24,198	81.8	158.5
TOTALS	29,592	476,666	77.3	338,636	66.9	577.6

5

1/ Westslope cutthroat

2/ Henry's Lake cutthroat

Table 2. Sources of trout eggs received at McCall Hatchery.

Species	Date received	Egg stage	Source
Henry's Lake cutthroat	6/13	Eyed	Henry's Lake Hatchery
Westslope cutthroat	4/25-5/23	Green	Fish Lake

Table 3. Transfers of trout from McCall Hatchery.

Date	Species	Number per pound	Number transferred	Receiving station	Pounds transferred
8/16	Westslope cutthroat	773.8	148,951	Clark Fork	192.5
8/16	Henry's Lake cutthroat	1,081.6	78,956	Sandpoint	73.0
9/20	Rainbow	145.6	10,046	Hagerman	69.0
TOTALS			237,953		334.5

We stocked 15 lakes and reservoirs and 27 rivers and streams with 126,050 catchable-size trout averaging 3.7 fish per pound, for a total of 33,682 pounds. This is a 53% increase over the number of fish stocked last year. Most of the increase is a result of the hatchery stocking fish in Payette Lake and Little Payette Lake, which in the past, have been direct plants by Fish and Game tankers.

Fry

Lowland Lakes

McCall Hatchery stocked only two lakes this year with trout fry (Table 4). Approximately 33,000 Henry's Lake cutthroat were returned to Henry's Lake and nearly 10,000 westslope cutthroat fry were planted in Fish Lake to provide future broodstock for our eggtaking operations there.

Mountain Lakes

McCall stocks nearly 600 mountain lakes with trout fry in Regions 2 and 3 on a three-year rotation basis, approximately 200 lakes per year. Lakes in the Snake, Boise, Salmon and Clearwater River drainages make up our stocking area (Figure 2). Most lakes are stocked by means of fixed-wing aircraft (Cessna 185) equipped with a fish-release hopper to facilitate release of the fry. Each year we try to stock a few lakes by backpack. Between 25 August and 13 September, we stocked 29,213 trout fry into 92 mountain lakes. Seven flights, at a cost of \$3,144, were required to fulfill our allocations this year. Due to bad weather and a reduction in the number of lakes to be planted, the average plane rental cost per lake stocked was considerably higher this year than last (\$34.17 vs. \$23.21).

SPAWNTAKING OPERATIONS

McCall Hatchery operates and maintains a trapping and holding facility at Fish Lake for the purpose of trapping and spawning westslope cutthroat trout. This facility consists of a velocity barrier, fish ladder and trap and two holding ponds. Fish Lake is located approximately six miles west of McCall and is owned by Idaho Department of Fish and Game. The trapping and holding facility, however, is located on land owned by Boise Cascade Corporation.

Trapping operations began on 18 April and were terminated on 23 May. During this time, 677 fish were trapped: 393 females and 284 males (Figure 3). The sex ratio of the run was 1.39 females per male, almost identical to the 1.36 females per male observed last year. Again this year, the trapped fish exhibited a wide range of sizes. The females ranged from 10.2 inches to 18.7 inches with a mean total length of 14.2 inches (Figure 4). Males ranged from 9.8 inches to 16.5 inches and had a mean total length of 12.8 inches (Figure 5).

Table 4. Lowland waters stocked with trout fry by McCall Hatchery.

Date	Species	Water stocked	Number stocked	Pounds stocked
9/15	Henry's Lake cutthroat	Henry's Lake	33,088	54.6
9/22	Westslope cutthroat	Fish Lake	9,324	37.0
TOTALS			42,412	91.6

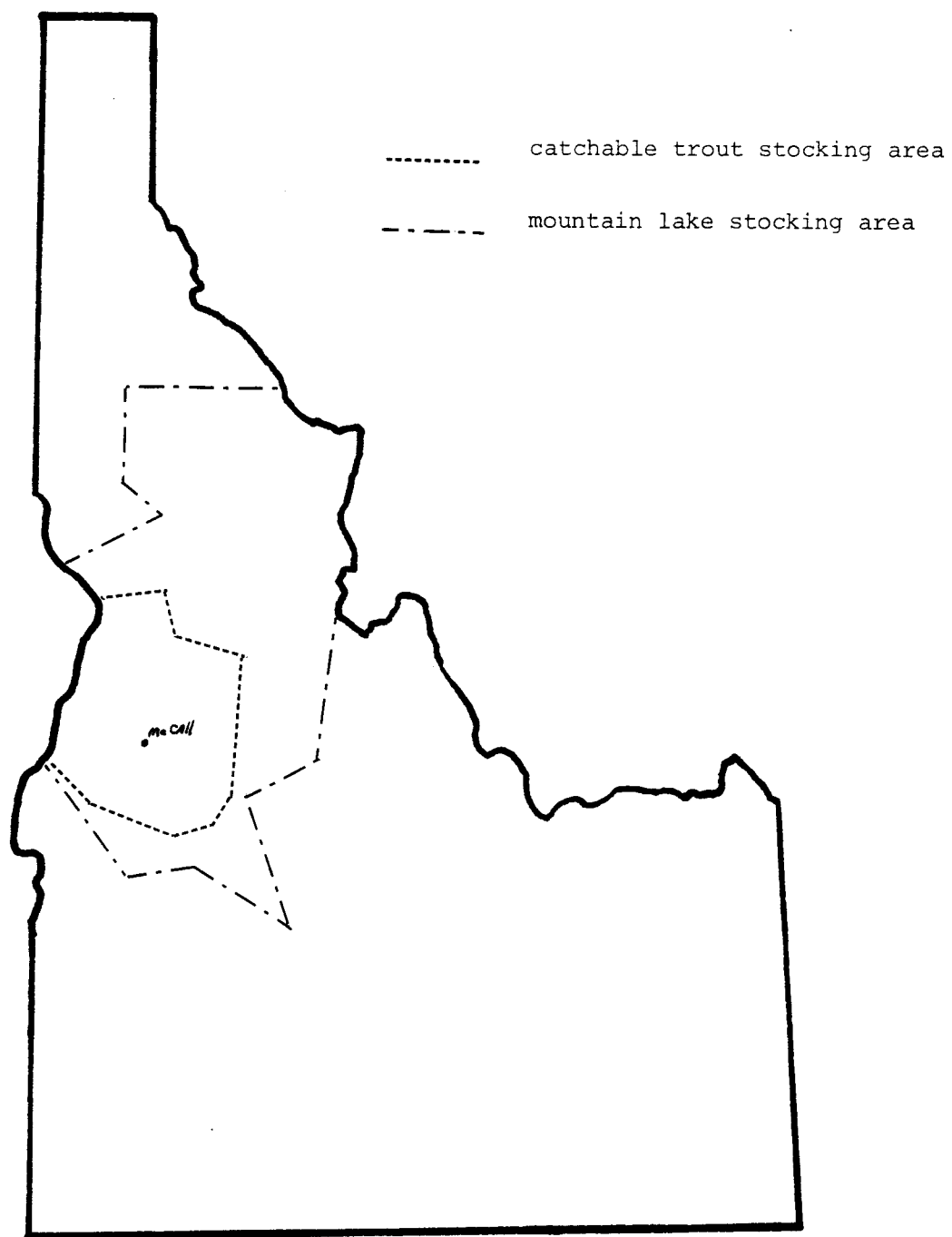


Figure 2. Catchable trout and mountain lake stocking area covered by McCall Hatchery.

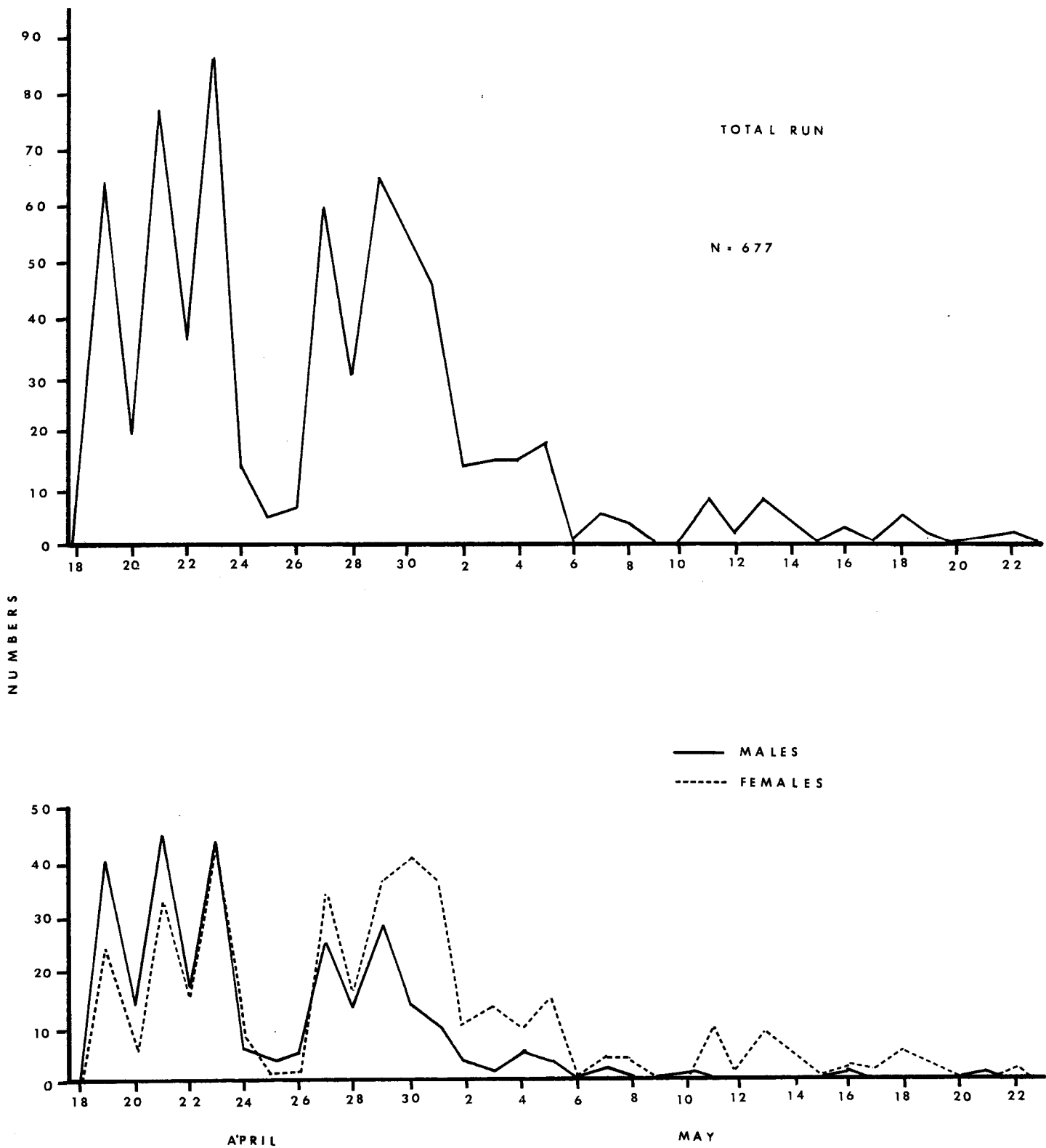


Figure 3. Numbers of westslope cutthroat trout trapped at Fish Lake, 1983.

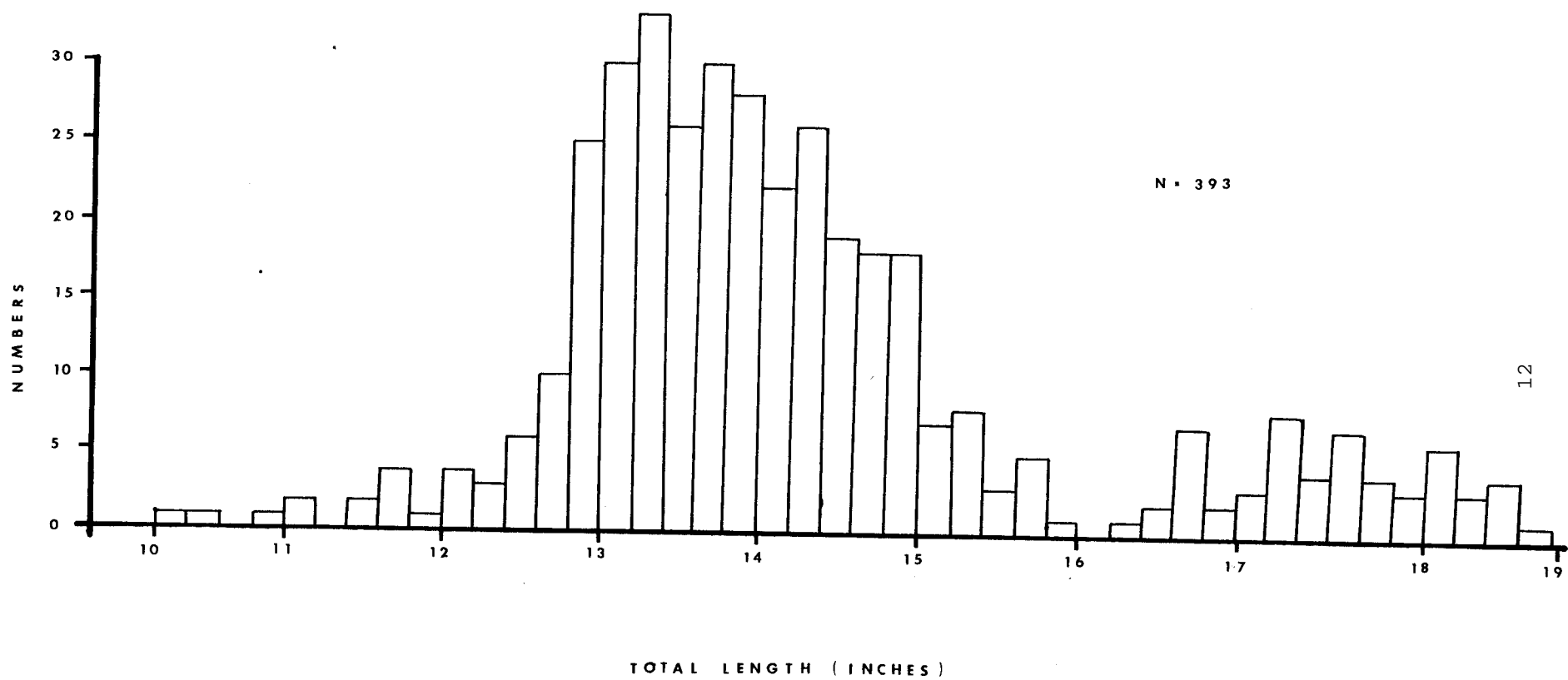


Figure 4. Total lengths of female westslope cutthroat trout trapped at Fish Lake, 1983.

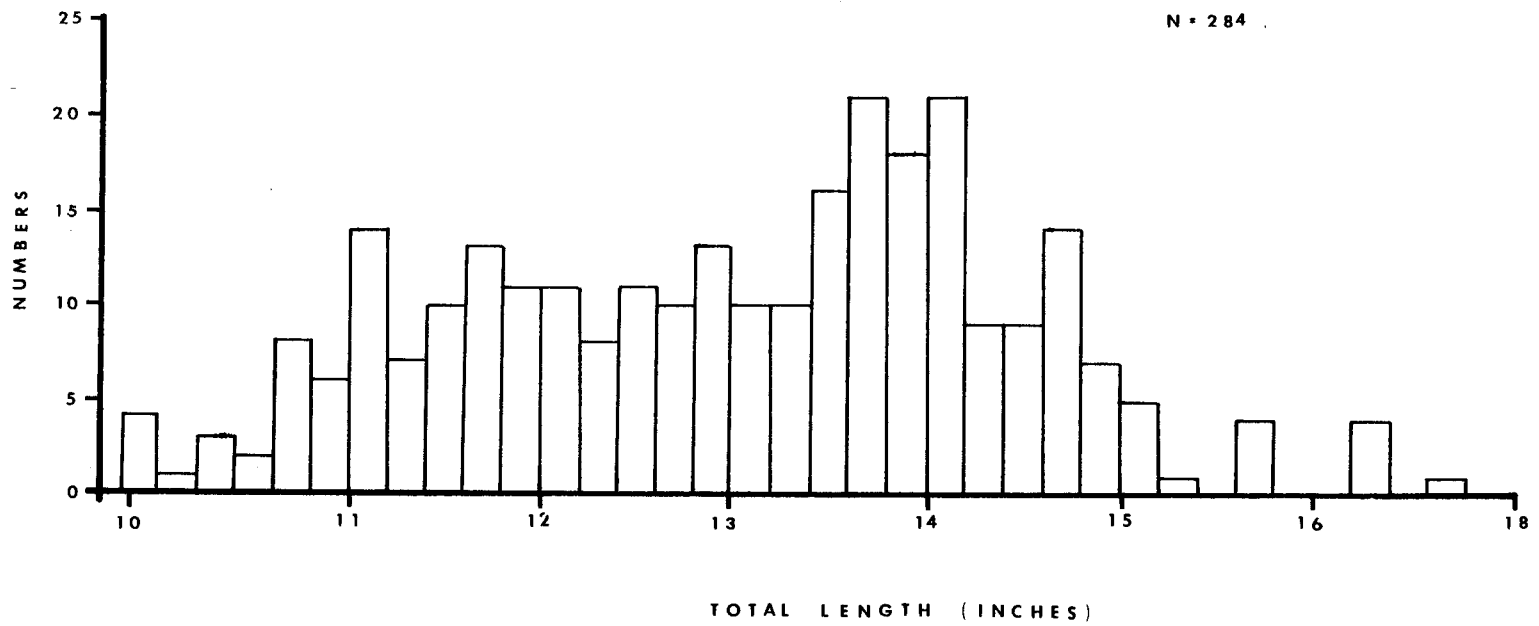


Figure 5. Total lengths of male westslope cutthroat trout trapped at Fish Lake, 1983.

Last year, all fish trapped were jaw-tagged with numbered Monel tags. Of the fish trapped this year, only 40.5% were jaw-tagged. Forty-four percent of the females were repeat spawners while only 36% of the males were repeats. Length data obtained from tagged fish indicated an average length increase from the previous year of only 0.9 inches.

Spawntaking operations began on 25 April and concluded on 23 May. During this time 389 females were spawned, yielding 274,490 eggs, an average of 706 eggs per female. All spawned-out fish were released above the trap to migrate upstream or return to the lake.

Ovarian fluid and gill samples of a number of adults were collected and sent to Joe Lientz (U.S. Fish and Wildlife Service, Dworshak NFH) for analysis of the incidence of viral diseases and epitheliocystis. Results were negative in all instances.

FISH FEED UTILIZED

A total of 500 pounds of Clear Springs feed was fed to our trout fry this year, at a cost of \$123.59 (Table 5). In addition, 143 pounds of desiccated liver was fed in an attempt to correct a dietary deficiency. A feed conversion of 1.29 pounds of feed to produce one pound of fish was attained and the cost per pound of fish produced was \$35.13 (excluding capital outlay).

SPECIAL STUDIES

Vexar netting

An incubation experiment using vexar netting was conducted on the Henry's Lake cutthroat eggs. A portion of the eggs were incubated in trays containing vexar while another group were incubated in trays without netting. Researchers have found that incubation with vexar has resulted in larger fry. Vexar is supposed to restrict movement of sac-fry within the incubator tray, thus enabling the fish to convert energy normally used in swimming to fish flesh.

However, in our small-scale experiment, we found no advantage to using vexar netting. In fact, we found that fry incubated with vexar were slightly smaller than those incubated without vexar. Further tests may be conducted at McCall, but there appears to be no benefit in using vexar netting for cutthroat incubation at McCall.

Table 5. Fish feed fed to trout fry at McCall Hatchery 1983.

Brand	Feed size	Pounds fed	Cost
Clear Springs	#1	100	\$ 24.63
Clear Springs	#2	350	86.59
Clear Springs	#3	50	12.37
Bio-Products	Liver	143	664.95
Totals		643	\$788.54

Clinoptilolite

In a continuing effort to increase survival of trout fry held in sealed polyethylene bags, tests were conducted this year using larger volumes of water per bag and an ammonia absorbing chemical (Clinoptilolite).

Results indicated trout fry survived better in bags containing 1.2 gallons of water than in bags containing 0.5 gallons of water. Waste products excreted by the fish (CO_2 and ammonia) seem to be the limiting factors and measurements of these products indicated that high ammonia levels were more critical than CO_2 . Further tests were then conducted using clinoptilolite in the bags. Results concluded that bags containing one pound of trout fry, 1.2 gallons of water and 63.6 grams of clinoptilolite had ammonia concentrations nearly $\frac{1}{3}$ that of bags containing no clinoptilolite after five hours. Fish mortality was minimal in clinoptilolite bags. The use of clinoptilolite would be beneficial when loading fish at higher than normal densities or when holding fish for longer than normal periods. Both these conditions are frequently necessary when stocking mountain lakes.

ACKNOWLEDGEMENTS

McCall Hatchery staff included: Bill Hutchinson, Fish Hatchery Superintendent II; Patrick Chapman, Fish Hatchery Superintendent I; John Thorpe, Fish Culturist; David Parrish, Fish Culturist; June Morse, Dan Pfeiffer, Brian Cockrane, Biological Aides; Christie Cockerham, Laborer.

APPENDIX

Appendix 1. Waters stocked with catchable rainbow trout by McCall

Hatchery

RIVERS AND STREAMS		
	Water	Catalog Number
	Bear Creek	05-14-10-0000
	Big Creek	09-14-09-0000
	Boulder Creek	07-12-10-0000
	Clear Creek	09-14-08-0000
	Crooked River	05-14-09-0000
	East Fork Lost Valley Creek	08-26-02-0003
	East Fork South Fork Salmon River	07-24-13-0000
	Gold Fork River	09-14-14-0000
	Goose Creek	07-12-13-0000
	Hornet Creek	08-22-00-0000
	Johnson Creek	07-24-13-0008
	Kennally Creek	09-14-14-0001
	Lake Fork Creek	09-14-17-0000
	Lick Creek	05-14-12-0000
	Little Salmon River	07-12-00-0000
	Middle Fork Weiser River	08-19-00-0000
	North Fork Lake Fork Creek	09-14-17-0005
	North Fork Payette River	09-14-00-0005,0006,0007
	Rapid Creek	09-14-14-0002
	Secesh River	07-24-11-0000
	Skookumchuck Creek	07-08-00-0000
	Slate Creek	07-09-00-0000
	Weiser River	08-00-01-0000
	West Fork Weiser River	08-26-00-0000
	Whitebird Creek	07-07-00-0000
	Wildhorse River	05-14-00-0000
	Browns Pond	09-00-00-0363
	Brundage Reservoir	07-00-00-0187
	Corral Creek Reservoir	09-00-00-0261

Appendix 1. Continued.

LAKES AND RESERVOIRS	Cruzen-Brown Pond	09-00-00-0330
	Goose Lake	07-00-00-0189
	Granite Lake	09-00-00-0380
	Hazard Lake	07-00-00-0169
	Herrick Reservoir	09-00-00-0251
	Hornet Creek Reservoir	08-00-00-0104
	Little Payette Lake	09-00-00-0326
	Lower Boulder Reservoir	09-00-00-0320
	Miltons Pond	09-00-00-0294
	Payette Lake	09-00-00-0364
	Rowlands Pond	09-00-00-0328
	Seven Devils Lake	07-00-00-0113